The effectiveness of external organization communication on regional disaster management agency at Padang City in implementing the tsunami early warning system

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Abstract. This study aims to describe the effectiveness of external communication on the Regional Disaster Management Agency at Padang city (BPBD) in Implementing of Tsunami Early Warning System. The organization external communication's problem in implementing tsunami early warning system became the background of the study. The lack of public understanding about tsunami early warning, unorderedly in the evacuation, the reluctance in using the shelter as the evacuate place and the decreases number and quality of communication media in implementing tsunami early warning system by BPBD. This descriptive research is using a quantitative method in which the population is the people residing in the tsunami hazard zone area. The sample, the cluster random sampling technique is used. The data were collected using a questionnaire and measure with *Likert scale* and supported by documentation study. The results showed that the effectiveness of external communication on Regional Disaster Management Agency of Padang City in implementing the tsunami early warning system is quite useful. The efficiency of 65.48 is in the range of 60-79.99. There are two ineffective factors. First, the community action (taken from effective communication's indicator) showed the value is 59 which means the sign is in the range 40-59.99. The second is from affect factors of the effective communication with value 59.66 means the indicator is in the range 40-59.99.

1 Introduction

Based on the experience of earthquake and tsunami in Aceh on 26 December 2004 with more than 240,000 victims. It noted as deadliest disasters and raised concerns about the vulnerability of the Padang [1]. On September 30, 2009, a big earthquake shook Padang and caused thousands of victims and destroyed buildings, though Tsunami was not happening [2].

As a high susceptible city with earthquake and tsunami, Padang city requires an effective disaster management method. From several stages in disaster management, making an adequate early warning system becomes a critical task. Old warning systems are not only focused on proper warning techniques but also require an understanding of the warning information's risk to reduction and prevention the damage [3, 4, 5, 6, 7].

In delivery, the importance of tsunami early warning system requires an effective external organizational communication for the leading sector of regional disaster management agency named BPBD of Padang city. Organization external communication is the exchange of message between the organization and the community directly or by using mass media to achieve the goals set. External organizational communication is an essential thing in disaster management. Through effective external corporate communication, disaster management

activities can be more effective and efficient. Implementation of an effective tsunami early warning system can be realized if the external and internal interface of Padang regional disaster management agency run well. According to Ngusmanto, international communication organization is a communication that occurs in the relationship organization with the public [8]. External organizational communication required by the organization regarding organization's forming image about giving right and reasonable information about the role of institutions in the life order. Subsequently, according to Suranto, external communication is a communication process between an organization with parties outside the organization (public external). A succeed communication happens when the messenger successfully conveys the message he intended, and the recipient of the message successfully received and understood [9].

In reality, the observation showed external organizational communication by Padang regional disaster management agency (BPBD Padang) has several problems. The weakness of public understanding about the information of tsunami early warning system given by BPBD Padang effect the primary goal of early warning system cannot be achieved. It can be shown from the unorderedly evacuation, reluctance in using the shelter and insufficient early warning systems.

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Effective communication can be seen in the goal achievement that has been set. If the outcome of the activity gets closer to the target, it is more effective and also the opposite. The measurement of the effectiveness of communication includes 1) Understanding, i.e. Careful acceptance of the content of stimuli as meant by the sender of the message is said to be useful if the recipient gains a proper understanding of the message delivered by the sender of the word. 2) Affect attitudes, communication is supposed to be useful if it can affect the view of the recipient of the message in accordance with the wishes of the sender 3) Action, communication is said to be useful if it can encourage the message recipient to perform actions in accordance with the desired by the sender of the message [10].

The effectiveness of external organizational communication can also be influenced by factors that support and hamper the achievement of an organization's external communication objectives. Several factors affect the efficacy of foreign communication organization:

1. the recipient is the party who became the target message sent. Message recipient indicators include the accuracy of message recipients and message conformity with message recipients.
2. Timeliness received letters exactly when needed.
3. Media communications, which is a tool used to move messages from the sender to the recipient of the word. Indicators of communication media include the channel used and the quality of the press.
4. Message, i.e. Something delivered by the source to the recipient of the message. Message content indicators include content completeness, content clarity and message updates.
5. Messages format, i.e., the size of letters sent by the source to the recipient of the message, in accordance or not with a predetermined.
6. Sender, i.e., the author or sender of information messages [11].

2 Research methods

This study was quantitative research where the approach, data collection, data analysis, and data conclusions were presented in numerical data. The research was conducted in several sub-districts in Padang. Also, the population was the target community of Padang' BPBD in implementing Tsunami early warning system who lived in Tsunami hazard zone. The random cluster sampling was used to get the sample from 670,892 people. In this study, the authors use a questionnaire with the *Likert scale* model. The research instrument used is a questionnaire distributed to the specified sample. The percentage result is then compared to the standard of effectiveness measure by R & D Ministry of Home Affairs, as shown in Table 1. [12]:

Table 1. The standard size of effectiveness.

Interval Value	Level of Effectiveness
Below 40	Very ineffective
40 - 59.99	Ineffective
60 - 79.99	Effective enough
Above 80	Very effective

3 Result and discussion

To illustrate the effectiveness of external communication in BPBD Padang city, the calculate of effectiveness value should be done. The table below is the result from understanding, affecting attitude and action indicators. This result took by calculating the mean of respondents.

Table 2. Data results of the effectiveness of Padang' BPBD external communication in the implementation of the tsunami early warning system.

	X1	X2	X3
Number of Respondents	400	400	400
Mean	2.55	2.58	2.36

Meanwhile, to describe the factors that influence the Padang' BPBD external communication the researchers calculated the effectiveness value for the recipient, timeliness, media, message content, message format, and message source indicators by calculating the mean of the respondent's answer (see the table 3.)

Table 3. Results of data factors that influence Padang' BPBD external communication in the implementation of the tsunami early warning system.

	X1	X2	X3	X4	X5	X6
Number of Respondents	400	400	400	400	400	400
Mean	2.89	2.65	2.38	2.68	2.65	2.82

Based on the research by calculating the average, all indicators obtained results 65.48 which means the external communication of Padang' BPBD in the implementation of tsunami early warning system is on category quite effective with range value 60 - 79.99 as described in the following table:

Table 4. The effectivity of Padang' BPBD external communications in implementing tsunami early warning system.

No	Indicator Variables	TCR	N	Category Effectiveness
1	The understanding of community target of Padang' BPBD external communication in implementing the tsunami early warning system.	3.80	400	Quite effective
2	The influence of community target attitude community of Padang' BPBD external communication in implementing the tsunami early warning system.	4.62	400	Quite effective
3	Community target action of Padang' BPBD external communication in implementing the tsunami early warning system.	9	400	ineffective
4	The message receiver in Padang' BPBD external communication in implementing the tsunami early warning system.	2.25	400	Quite effective
5	Accuracy time is giving information in of Padang' BPBD external communication in implementing the tsunami early warning system.	6.25	400	Quite effective
6	Communication media of Padang' BPBD external communication in implementing the tsunami early warning system.	9.66	400	Ineffective
7	Message in Padang' BPBD external communication in implementing the tsunami early warning system.	67	400	Quite effective
8	Format message in Padang' BPBD external communication in implementing the	6.25	400	Quite effective

	tsunami early warning system.			
9	Information source in Padang' BPBD external communication in implementing the tsunami early warning system.	0.50	400	Quite effective
	Average effectiveness communication	5,48	400	Quite effective

Source: Data Result Processing 2017

From the table above could be seen most of the indicators used in measuring the effectiveness of the Padang' BPBD external communication in implementing the tsunami early warning system is quite useful only the action and the communication media in ineffective level.

Based on the results of the research it is known that the Padang' BPBD external communication in implementing the tsunami early warning system is quite effective. It is gotten after obtaining the results of effectiveness calculations based on effectiveness reference standards. The following will be explained the effectiveness of external communication organization and factors that affect the effectiveness of Padang' BPBD external communication in implementing the tsunami early warning system.

3.1 The understanding of community target of Padang' BPBD external communication in implementing the tsunami early warning system (Table 4 No. 1)

A discussion will be useful based on the results received by the recipient/target communication. If the recipient has a same perception with the communicator, the connection can be said effective [10]. According to that statements and based on the research conducted, the community gained an accurate knowledge by what is meant by BPBD Kota Padang in the implementation of the early warning system.

3.2 The influence of community target attitude community of Padang' BPBD external communication in implementing the tsunami early warning system. (Table 4 No. 2)

Effective communication is if the discussion undertaken can change the attitudes of the target community of conversation. However, failure to change one's position or outlook cannot be equated with failure to improve understanding. So, the target community can have an opinion but not change their views or attitudes [10].

Refer to that statements and based on research finding the communication able to influence the attitude of the community by what is intended by Padang' BPBD in implementing the tsunami early warning system. The results of measuring the effectiveness indicate that communication can affect people's attitudes, but communication has not been fully able to say

successfully influence public attitudes. The table shows that two of the nine indicators declared ineffective. The public is not considered the shelter as a temporary evacuation option. The community believes the information from Padang' BPBD, but they have not changed its view or attitude towards the choice of tough evacuation place.

3.3 The action of Community target of Padang' BPBD external communication in implementing the tsunami early warning system (Table 4 No. 3)

The effective communication based on the results received by it desired. If the recipient performs actions appropriate with the communicator expected then the communication can be said to be effective. Indicators encouraging others to do the same actions as desired in communication are difficult indicators to achieve [10]. By Tubb and Moss and based on the research finding, external communications organization conducted by Padang' BPBD in the implementing tsunami early warning system has not been able to encourage people to take action by what is communicated. Even though the community already has a good understanding of communication, it is not necessarily followed by the community response through intelligent action in developing what is communicated by the communicator.

3.4 The recipient of the message in the organization's external communication (Table 4 No. 3)

The recipient of the word is one of the factors that influence the effectiveness or failure of communication. The recipient is the target of the message by the communicator. Communicants/recipients of words in an organization's external communications are usually people in the organization, or outside the organization with relatively large numbers. The effectiveness of recipients in the organization's external communications determines whether or not an organization's external communication is valid [11]. Based on Harjana and research finding, the recipients that became the target of the external interface of Padang' BPBD in the implementing of tsunami early warning system was people who live in the tsunami hazard area.

3.5 Timeliness in external organizational communication (Table 4 No. 5)

Timeliness is an essential factor in the communication process. Messages will be well received by the recipient of the message if the message is delivered right when it is needed. Messages gave not in time will cause the word not appropriately secured so that what is meant to be not achieved [11]. Referring to what is delivered Harjana and according to results the author's research do, the message conveyed by Padang' BPBD in the implementation of tsunami early warning system to the

people who live in tsunami hazard area is right when needed.

3.6 Communication media is used in external organizational communication (Table 4 No. 6)

Communication media is a tool used to communicate with the community. The connection effectively works if the tools used to deliver the message have a good level of effectiveness[11]. Based on the expert and the research finding, communications media used by Padang' BPBD in delivering tsunami early warning information to the public is ineffective. The communication media used by the Padang' BPBD currently only two media that are radio and tsunami siren. The community thought the tsunami siren is uneasy enough to understand compared to radio. Also, the number of media or external communication tools of Padang' BPBD in the implementing the tsunami early warning has not reached all tsunami hazard areas which means that the number of communication tools is not sufficient for the implementation of external communication.

3.7 The contents of the message in the organization's external communications (Table 4 No. 7)

Message content is information provided to communications targets containing important, clear and up-to-date information values. Society will tend to give an amount that is not too high if the message contents are unimportant and un-updated [11]. Based on Harjana the and research findings, it can conclude that could be found that The message presented by Padang' BPBD external Communication in implementing Tsunami early warning system is quite clear and up-to-date.

3.8 The contents of the message in the organization's external communications (Table 4 No. 8)

The message format is the structure of the message given to the communication target that contains essential information by the provisions that have been set. Effective communication is influenced in some way by how the structure of the message is received by society. The structure of the word by the established will make the community accessible to digest the information provided [11]. Based on Harjana the and research findings, it can be concluded that the format of messages sent by Padang' BPBD is quite good because it is by the structure of the news that has been set.

3.9 Source of information in the organization's external communication (Table 4 No. 9)

The effective communication depends on the extent to which the source of information can be trusted by the recipient of the report. The cause of the information that the recipient believes generates the recipient's trust with

the information provided [11]. Based on Harjana the and research findings, the source of information in external communication of Padang' BPBD in the implementation of tsunami early warning system is trusted enough.

4 Conclusion

In general, each indicator of the effectiveness of Regional Disaster Management external communication in the implementing the tsunami early warning system is quite effective. It is proved by the research finding showed that the effect is obtained at 65.48. National R & D in 1991 mentioned that research findings could be said quite effective when the value is around 60 – 79.99. Also, public action indicator is not effective because the result is 59 where the ineffective level is in the range 40 – 59.99. (R & D Ministry of Home Affairs' standard in 1991)

Factors influencing the effectiveness level of external communication of Padang' Regional Disaster Management external communication in the implementation of tsunami early warning system consisting of recipients, timeliness, communication media, message content, message format, and information sources are declared quite effective. However, communication media indicator is ineffective because the result showed that the value is 59.66.

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